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RANGE CONDITION

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A Classification of the Scabland Bunchgrass Forage Type in the Palouse Rock Lake Soil Conservation District

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PALOUSE-ROCK LAKE SOIL CONSERVATION DISTRICT

WASHINGTON

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U. S. DEPARTMENT OF AGRICULTURE ★ ★ ★ ★ ★ ★ ★ ★ U. S. SOIL CONSERVATION SERVICE

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Foreword

The procedure outlined on the following pages is designed to assist stockmen and ranch planners in classifying their grazing as a basis for better management and permanent range improvement in the Palouse-Rock Lake Soil Conservation District.

When the classification is properly applied to a range or grazing unit, it permits a graphic portrayal of the major problems on appropriate maps and grazing schedules. It also becomes a reliable record of the condition of the range as it now exists, thus making it possible to measure the progress of applied remedial management practices in subsequent years.

In addition to showing the proportionate amounts of desirable, less desirable and undesirable plants in each condition class, it also indicates the amount of litter, degree of erosion and state of the plant vigor usually associated with each range condition class in the Scabland-Bunchgrass forage type.

Burdett H. Prince

Chairman

Palouse-Rock Lake Soil Conservation District

**United States
Department of
Agriculture**



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The Meaning of Range Condition

The value of range lands commonly varies in proportion to the amount of forage produced. This forage production can be expressed as range condition, e.g., in general the higher the forage production the better the range condition.

Certain factors such as forage composition, plant vigor, erosion, litter accumulation, and forage density differ in the several condition classes. As some of these differences can readily be seen or measured, range condition is determined by analyzing and segregating these factors, and thus develop a score sheet or guide for the rapid classification of all the range of this type in the district.

A range condition analysis is a practical inventory of the present value of a range expressed in terms of its potential value. Grazing land that falls in any condition class except excellent, therefore, is producing less forage than it should and can produce.

The poorer the condition of a range, the greater should be the care given to designing conservation practices to insure its recovery. As a guide to designing good management, a set of general range management recommendations is shown on page 9.

The stocking rates given are to be considered only as initial stocking rates and should in all cases be followed each season by forage utilization checks and a reconsideration of the kinds, numbers, and ages of the animals grazed.

In practice, when using this pamphlet as a guide to classify range as to condition, any unit of range should be tentatively placed in a condition class or classes by use of the score sheet. This tentative classification should then be checked by comparing each portion of the range tentatively so classified, with the more complete description and picture given for each condition class, before final assignment of condition class is made. This then becomes the basis for the initial rate of stocking and for the designing of appropriate range conservation practices.

U.S.D.A., NAL

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CATALOGING PREP

THE SCABLAND BUNCHGRASS RANGE - How to recognize it



Scabland bunchgrass range near Ewan, Washington. The topography shown here is characteristic of the forage type.

Scabland bunchgrass ranges in the Palouse-Rock Lake Soil Conservation District are characterized by a generally flat-lying topography crossed by frequent steep or vertical-sided swales or coulees. Except on occasional rounded hilltops and in the swales the soils are shallow and bed-rock is frequently exposed. From a plant growth standpoint three main kinds of sites prevail: the deeper-soil upland, the shallow-soil upland, and the swales. The deeper-soil upland and the shallow-soil upland are often found closely associated in a patchwork pattern that is often referred to as biscuits or islands. In such cases the deeper soils comprise the so called biscuits, and the shallow soils the so called "scab" areas between.

On the deeper-soil upland bluebunch wheatgrass, Idaho fescue and Sandberg bluegrass predominate unless the range has deteriorated. When grazed too heavily, these species tend to be replaced by annual grasses or by squirreltail or foxtail barley.

As most of the shallow-soil upland is very susceptible to deterioration under grazing, few of these areas today are in better than fair condition. They are generally characterized by a stand of Sandberg bluegrass, threetip sagebrush and annual grasses. Scattered plants of bluebunch wheatgrass may still prevail on the better range condition areas.

The swales are sometimes characterized by a stand of giant wild rye with an understory of annual grasses or Kentucky bluegrass or a combination of the two. Rabbitbrush or sagebrush may be abundant on severely deteriorated sites. Alkaline areas may contain almost pure stands of saltgrass or alkali bluegrass. Exceptionally wet areas frequently contain large amounts of iris, sedges and rushes.

As a basis for ready identification and classification, the important plants of the scabland bunchgrass range further are subdivided into key forage plants and other plants. A breakdown is made also into grasses, shrubs, and weeds. Thus the principal plants have been segregated as follows:

Management Plant Groups	Grasses	Shrubs	Forbs (weeds)
Key Forage Plants	Bluebunch wheatgrass	Bitterbrush	
	Giant wild rye	Snowberry	
	Idaho fescue		
	Junegrass		
	Kentucky bluegrass		
	Redtop		
Other Plants	Annual bromes	Haw	Balsamroot
	Alkali bluegrass	Horsebrush	Borages
	Canada bluegrass	Rabbitbrush	Fleabane
	Foxtail barley	Rose	Geranium
	Needlegrasses	Sagebrush	Indianwheat
	Saltgrass	Serviceberry	Iris
	Sandberg bluegrass		Lupine
	Squirreltail		Milkvetch
			Russian thistle
			Tumble mustard
			Wild buckwheat
			Wild celery
			Yarrow

EXCELLENT CONDITION: CONDITION INDICATORS



Excellent condition, scabland-bunchgrass range. The luxuriant plant cover, principally high-producing bunchgrasses, provides effective erosion control and furnishes a maximum amount of feed.

Indicator Plants: More than 80 per cent of the vegetation is composed of key forage plants. These will usually be bluebunch wheatgrass, Idaho fescue, and June grass, and occasionally include bitterbrush or snowberry on the uplands. In the swales the key species will be giant wild rye, Kentucky blue grass, or redtop. Other plants usually make up less than 20 per cent of the total vegetation.

Plant Vigor: Key grasses are vigorous with a large number of stems per plant. These grasses are being maintained by establishment and growth of new seedlings as indicated by the presence of plants of various sizes and ages.

Erosion: There is normally no measurable current erosion on an excellent condition range. Old, non-active erosion scars may be visible as evidence that the range has improved from a former deteriorated condition. Soil is being built as indicated by the accumulation of duff.

Litter: There is usually an abundance of litter on the ground and in the grass bunches. 4 to 6 inches of stubble remain on old plants, 700-800 pounds of litter and plant residue per acre remain at the end of the grazing season when properly grazed.

GOOD CONDITION: CONDITION INDICATORS



Good condition scabland bunchgrass range. A plant cover such as this, in which perennial bunchgrasses still predominate is effective in retarding run-off. Range of this sort produces from 75 to 90 per cent of all the forage possible.

Indicator Plants: From 40 to 80 per cent of the vegetation is usually comprised of key forage plants. Other plants usually comprise from 20 to 60 per cent.

Plant Vigor: Key grasses are moderately vigorous with a rather large number of stems per plant. These grasses are usually being maintained by establishment and growth of new seedlings as indicated by the presence of plants of various sizes. An absence of seedlings, except in abnormally dry years, will indicate a deteriorating range.

Erosion: There is normally no more than slight zero current erosion on a good condition range. Erosion more severe than this indicates a downward trend; no current erosion indicates improvement. Old, non-active erosion scars are also evidence of an upward trend.

Litter: There is a moderate amount of litter on the ground and in the grass bunches that results in a gradual accumulation of organic matter in the top-soil. Last year's stubble, averaging 3-4 inches high with 500 to 700 pounds of litter and plant residue, will usually be found per acre if the range has been properly grazed during the years immediately following the inventory.

Forage Density: Forage densities usually range from 20 to 30 per cent.

FAIR CONDITION: CONDITION INDICATORS



Fair condition scabland bunchgrass range. The moderately thin stand of perennial grasses provides ineffective erosion control and produces only from 50 to 75% the possible forage.

Indicator Plants: From 20 to 40 per cent of the vegetation is usually composed of key forage plants. Other plants usually comprise from 60 to 80 per cent.

Plant Vigor: Key grasses are generally rather weak with not more than a moderate number of seed stalks per plant. Vigorous plants with a large number of stalks usually indicate an improving range. On sheep ranges, however, the coarser grasses may appear to have essentially full vigor even though the range is deteriorating.

Erosion: Current erosion is normally slight to moderate. Erosion more severe than this indicates a downward trend; less current erosion indicates improvement. Old, non-active erosion scars are also evidence of an upward trend.

Litter: There is a small amount of litter on the ground, an amount that is generally inadequate to result in accumulation of organic matter. Exceptions may occur where the forage is composed largely of annual grasses. Last year's stubble height will be short except in special instances of heavy class overgrazing. Litter, plus herbaceous forage plant residue, rarely will exceed 200 to 500 pounds per acre.

Forage Density: Densities usually range from 15 to 25 per cent.

POOR CONDITION: CONDITION INDICATORS



Poor condition scabland bunchgrass range. The sparse plant cover composed largely of annual grasses and sagebrush yields from 25 to 50% the forage that would be produced on this same range in excellent condition.

Indicator Plants: From 10 to 20 per cent of the vegetation is usually comprised of key forage plants. Other plants usually comprise from 80 to 90 per cent.

Plant Vigor: Key grasses are generally weak with few stalks per plant. Rather vigorous plants with a moderate to large number of stalks usually indicate an improving range. On sheep range, however, the grasses may have essentially full vigor even though the range is deteriorating. Undesirable plants show vigor with some new seedlings.

Erosion: Current erosion is usually moderate to severe. Erosion more rapid than this indicates a downward trend. When less rapid, improvement is indicated. Old, non-active erosion scars becoming vegetated are also evidence of an upward trend.

Litter: There is little or no litter on the ground except that of the current year, an amount that is inadequate to result in accumulation of organic matter.

Forage Density: Forage densities usually range from 10 to 20 per cent. Last year's stubble height is usually short. Litter plus plant residue rarely will average more than 100-200 pounds per acre.

VERY POOR CONDITION: CONDITION INDICATORS



Very poor condition scabland bunchgrass range. The sparse stand of vegetation provides little erosion control and furnishes less than 25 per cent of the forage the range should produce.

Indicator Plants: Key forage plants make up less than 10 per cent of the vegetation; other plants usually comprise more than 90 per cent.

Forage Vigor: Key grasses are weak with few stalks per plant. More vigorous plants with a moderate to large number of stalks usually indicate an improving range. On sheep range, however, the coarser grasses may be moderately vigorous even though the range is deteriorating. Undesirable plants show vigor with new seedlings in evidence.

Erosion: Current erosion is usually severe, and indicates continued range deterioration. Erosion lighter than this indicates improvement. Old, non-active erosion scars becoming vegetated are also evidence of an upward trend.

Litter: Litter is very thin or lacking, the amount present rarely being sufficient to permit accumulation of organic matter. No stubble height may be discernible; litter plus plant residue rarely exceed 100 pounds per acre, unless the preceding season has been abnormally wet or the area has been lightly grazed in previous years.

Forage Density: Forage densities are usually 10 per cent or less of a complete ground cover.

A GUIDE TO GRAZING MANAGEMENT

Range improves most rapidly and reaches range readiness when adequate amounts of residue are left at the close of the grazing season, and when stock are not turned on the range before range readiness is reached.

SEASON OF USE

Range Condition	Season best suited for grazing
Excellent:	Spring-fall-summer if pasture contains swales, winter if supplemented by concentrates, (see good and : allowable use below). Do not turn stock on before new plants have leaves 4-5 inches high.
fair :	
Poor :	Spring-fall - Unless area of swales is large, extreme care will need to be used to avoid overgrazing when grazed in summer. Do not turn stock in before the new key plants are 5-7 inches high.
Very poor:	Spring, preferably deferred every other year until after seed maturity of perennials. Do not turn stock on before key plants are 7" or more high.

SYSTEM OF GRAZING

Range Condition	
Excellent:	Defer spring use until after seed maturity every third year or divide into 3 units, and and good ; rotate, starting with a different unit each spring.
Fair :	Defer spring use every other year by dividing into 2 units and rotate grazing.
Poor :	Defer spring use until after seed maturity of perennials until range improves one condition : class.
Very poor:	Where remnant perennials occur, defer grazing until seed maturity, then graze and trample heavily for a few days to assist planting of seed. Where there are no perennial grass : remnants, reseed artificially, if terrain permits.

ALLOWABLE USE

Range Condition	Grazed Spring-Fall	Grazed only in Summer, Fall or Winter
Excellent:	Leave 30% of the seed stalks on bluebunch wheatgrass and Idaho fescue. Leave 4"-5" stubble on wheatgrass, : 2" stubble on Idaho fescue	Leave 20% of the seed stalks, 3"-4" wheatgrass and 1-1/2" Idaho fescue stubble.
Fair :	Leave 35% of seed stalks, 5" or more wheatgrass stubble, 2-1/2" Idaho fescue stubble.	: 10% more forage may be removed.
Poor :	Leave 50% of seed stalks and an average 6" stubble on wheatgrass and an average 3-1/2" stubble on Idaho fescue.	: This range in poor condition requires more residue for over winter protection than similar sites in excellent, good or fair condition. Leave same amount as indicated for spring use.
Very poor:	Light use is essential for improvement. Leave half the forage or 6" stubble, 50% of seed stalks, wheatgrass, whichever is most residue.	: Same as for spring-fall use. Effort should be directed toward avoiding too early spring use, and to leaving optimum amounts of residue, to encourage rapid improvement in condition.

INITIAL STOCKING RATE

Range Condition -	Acres required per month for 1000 pound cow
	Spring-Fall Use Late Summer, Fall or Winter Use
Excellent:	2 acres for 1 month - 8 acres for 4 month season: 2-1/2 to 3 acres
Good :	2-1/2 acres for 1 month - 10 acres for 4 month season: 3 to 4 acres
Fair :	3-1/2 acres for 1 month - 14 acres for 4 month season: 4 to 7 acres
Poor :	4-1/2 acres for 1 month - 18 acres for 4 month season: 10 or more acres
Very poor:	8 acres for 1 month - 32 acres for 4 month season: Unprofitable to graze these seasons.

SCORE SHEET - SCABLAND BUNCHGRASS RANGE

Condition	Relative Potential	Indicator	Forage Vigor	Current	
Class	Forage Yield	Plants	Key Plants	Erosion	Litter
Excellent	90 to 100%	Key plants: 80% or more. Other plants: 20% or less	Strong	None or Negligible	Abundant
Good	75 to 90%	Key plants: 40 to 80% Other plants: 20 to 60%	Moderately Strong	Slight to None	Moderate
Fair	50 to 75%	Key plants: 20 to 40% Other plants: 60 to 80%	Rather Weak	Moderate to Slight	Scattered, Thin
Poor	25 to 50%	Key plants: 10 to 20% Other plants: 80 to 90%	Weak	Severe to Moderate	Slight
Very poor	0 to 25%	Key plants: 10% or less, Other plants 90% or more	Weak to Very Weak	Severe to Very Severe	Little or None

COMMON AND SCIENTIFIC NAMES AND SYMBOLS OF PLANTS

KEY FORAGE PLANTS

<u>Common Name</u>	<u>Scientific Name</u>	<u>Symbol</u>
Bitterbrush	<i>Purshia tridentata</i>	Ptr
Bluebunch wheatgrass	<i>Agropyron spicatum</i> (A. inerme)	Asp (Ain)
Giant wild rye	<i>Elymus condensatus</i>	Eco
Idaho fescue	<i>Festuca idahoensis</i>	Fid
Junegrass	<i>Koeleria cristata</i>	Kcr
Kentucky bluegrass	<i>Poa pratensis</i>	Pop
Redtop	<i>Agrostis alba</i>	Aab
Snowberry	<i>Symphoricarpos</i> spp.	SYM

OTHER PLANTS

• Annual bromes	<i>Bromus</i> spp.	BRO-A
Alkali bluegrass	<i>Poa juncifolia</i>	Pju
• Balsamroot	<i>Balsamorhiza</i> spp.	BAL
Borages.	<i>Boraginaceae</i>	BOR
Canada bluegrass	<i>Poa compressa</i>	Pco
Fleabane	<i>Erigeron</i> spp.	ERE
• Foxtail barley	<i>Hordeum jubatum</i>	Hju
Geranium	<i>Geranium</i> spp.	GER
Haw	<i>Crataegus</i>	CRA
• Horsebrush	<i>Tetradymia</i> spp.	TET
Indianwheat	<i>Plantago purshii</i>	Ppj
Iris	<i>Iris missouriensis</i>	Imi
Lupine	<i>Lupinus</i> spp.	LUP
Milkvetch	<i>Astragalus</i> spp.	ASR
• Needlegrasses	<i>Stipa</i> spp.	STI
• Rabbitbrush	<i>Chrysothamnus</i> spp.	CHR
Rose	<i>Rosa</i> spp.	ROS
Russian thistle	<i>Salsola pestifer</i>	Spe
• Sagebrush	<i>Artemisia</i> spp.	ART
Saltgrass	<i>Distichlis stricta</i>	Dst
• Sandberg bluegrass	<i>Poa secunda</i>	Pse
• Serviceberry	<i>Amelanchier alnifolia</i>	Aal
• Squirreltail	<i>Sitanion hystrix</i>	Shy
Tumble mustard	<i>Norta altissima</i>	Nal
• Wild buckwheat	<i>Eriogonum</i> spp.	ERG
• Wild celery	<i>Lomatium</i> spp.	LOM
• Yarrow	<i>Achillea lanulosa</i>	Ala

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